

U.S. Patent Application No.: 10/728,881

Attorney Docket No.: 57983.000130

Client Reference No.: 15856ROUS01I

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :
: Group Art Unit: 3729
Herman Kwong et al. :
: Examiner: Rick Kiltae Chang
Appln. No.: 10/728,881 :
: Confirmation No.: 9613
Filed: December 8, 2003 :
: Customer No.: 21967
For: INTER-COMPONENT CHANNEL :
ROUTING IN A MATRIX OF :
ELECTRONIC COMPONENTS :

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Commissioner for Patents
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REQUEST FOR PRE-APPEAL BRIEF CONFERENCE

Pursuant to the Pre-Appeal Brief Conference Pilot Program announced in the Official Gazette, Applicants hereby request a pre-appeal brief conference in the above-referenced patent application. No amendments are being filed with this request. Additionally, this request is being filed with a Notice of Appeal. The review is requested for the reasons stated below.

The present application was filed on December 8, 2003. Claims in an office action dated October 25, 2006, claims 1-14 were finally rejected under 35 U.S.C. § 102(b) as being anticipated by Carey et al. (U.S. Patent No. 5,438,166, hereinafter "Carey"). Despite the Examiner's misinterpretation of Carey and the present patent application, the Office has maintained its rejections of claims 1-14, which are certain to be overturned on appeal. Rather than further time being spent addressing the Carey reference, Applicants have elected to pursue the new pilot program.

As set forth in greater detail in Applicants' response dated December 14, 2006, the cited reference Carey fails to disclose, or even suggest, all the elements set forth in the pending claims.

REJECTIONS UNDER 35 U.S.C. § 102(b)

Claims 1-14 were rejected under 35 U.S.C. § 102(b) as being anticipated by Carey et al. (U.S. Patent No. 5,438,166, hereinafter "Carey"). Specifically, regarding independent claim 1, Applicants respectfully submit that Carey fails to teach or suggest the step of "forming a first inter-component channel ..., the first inter-component channel extending between a first set of two or more electronic components of the plurality of electronic components and having a first orientation" or the step of "forming a second inter-component channel ..., the second inter-component channel extending between a second set of two or more electronic components of the plurality of electronic components and having a second orientation different from the first orientation." Nor does Carey teach or suggest that the first and second inter-component channels are formed "by arranging vias." The rejection of independent claim 10 suffers from similar deficiencies.

The Examiner did not address claims 1-14 individually but made the following general assertions:

- (i) Carey discloses a plurality of channels (64);
- (ii) col. 11, lines 45-46 discloses different orientations;
- (iii) 44 and 46 are different components;
- (iv) it is inherent that 50 are formed by forming vias through insulating layers and filling the vias with conductors;
- (v) col. 12, lines 61-63 discloses forming channels at different layers;
- (vi) a blind via is formed between from conductors 50 to 51; and
- (vii) it is inherent that conductors are formed at different layers to different electronic components.

Merits of these assertions aside, it is improper for the Examiner to apply the cited reference to all the pending claims without explaining its relevance to each claim. Furthermore, in rejecting Applicants' method claims, it is improper for the Examiner to rely on structural features shown in Carey and supplement the deficiencies with "inherency" statements.

Substantively, the Examiner's citations to Carey have failed to show that Carey teaches or suggests all the elements presently claimed.

First, Carey is directed to a completely different type of electronic product as compared to the "multilayer signal routing device" recited in the pending claims. Carey discloses a customizable circuitry having mass-produced wire segments forming programmable junctions. Carey's interconnect board have a fixed arrangement of wire segments which constitute almost all the conductive traces in an interconnect board. The only things that can ever change in Carey's interconnect board are the programmable links (e.g., 72) and vias (e.g., pillar 70). Once produced, no additional wiring (other than the inter-layer vias or links) can be formed. Accordingly, it is neither possible nor necessary to implement any channel routing technique, as presently claimed, in Carey's customizable circuitry.

Second, the Examiner's understanding of Carey, as reflected in the above-listed citations, is either inaccurate or incorrect.

For example, the Examiner asserts that "Carey discloses a plurality of channels (64)." Yet, the so-called "channels (64)" as shown in Figures 2-5 of Carey are not "inter-component channels" as presently claimed. The "inter-component channels" as recited in claims 1 and 10 refers to extra spacing created "for accommodating a plurality of conductive traces by arranging vias ... in the multilayer signal routing device."

On the other hand, the "channels (64)" in Carey are "programming tracks" "formed through and across the customization plane 48" such that "the underlying diagonally-extending programmable junctions 66 are accessible therethrough" (col. 11, lines 10-15). In other words, the so-called "channels (64)" are essentially cut-out portions of (or windows in) the customization plane that expose underlying programmable junctions for vertical access from the customization plane. The programming tracks (64) are not formed by arranging or re-arranging vias, are not located in any signal layer, and do not accommodate the routing of conductive traces. As such, the "inter-component channels" in the present invention are completely different from Carey's programming tracks in formation, location, and function.

In addition, the Examiner's interpretation of the "programming tracks" as equivalent of the presently claimed "inter-component channels" is inconsistent with the Examiner's subsequent assertion that "col. 12, lines 61-63 discloses

forming channels at different layers" (emphasis added). Col. 12, lines 61-63 in Carey merely describes pre-fabricated X- and Y-conductor segments. Now, the Examiner appears to treat the X- and Y-conductor segments as "channels." However, in the same drawing, the programming tracks 64 are also shown. The Examiner cannot cite elements from the reference in the alternatives and leave it to Applicants to decide which one would be a better fit. To the extent the Examiner seriously considers the conductor segments as the equivalent of "inter-component channels," the Examiner is also mistaken. The mere presence of wires running in different orientations does not prove that a method of forming channels of different orientations has been disclosed or suggested.

Although Carey does mention "wiring channels" (col. 16, lines 32-33 and 61), that term merely refers to the space occupied by pre-fabricated wire segments. The wiring channels are not formed by arranging vias. Indeed, the Examiner does not assert any relevance of Carey disclosure of wiring channels.

The Examiner further points to Carey at col. 11, lines 45-46 ("... the tracks can assume any angle depending solely on user needs.") as disclosing different orientations of "channels." Applicants respectfully disagree. All the programming tracks shown in the Carey drawings are in parallel with one another. See, e.g., Figures 2-5, 8, 23 and 34. Carey never shows or describes any programming tracks (on a same interconnect board) that have different orientations or cross one another. Therefore, Carey meant to have parallel programming tracks that extend diagonally across the interconnect at the same angle. It is such a common angle that can have different orientations with respect to the circuit board. As confirmation, in the same paragraph cited by the Examiner, Carey describes a "pitch (P), as a measure of the distance between successive programming tracks" (col. 11, lines 49-51). It is well known that a "pitch" is meaningless unless the successive lines (or tracks) are evenly spaced. That is, the successive lines (or tracks) must be in parallel with each other, i.e., having the same orientation. Therefore, contrary to the Examiner's understanding, Carey does not contemplate programming tracks (let alone "channels") having different orientations with respect to one another.

The Examiner further states that "44 and 46 are different components." This statement may be true in the sense that wires 44 and 46 in Carey are two separate sets of wires. However, if

the Examiner meant to read these "different components" onto the "plurality of electronic components" as recited in claims 1 and 10, the Examiner would be mistaken. The "electronic components" as presently claimed typically refers to integrated circuit (IC) chips that are mounted on a multilayer signal routing device, rather than the interconnecting wires themselves.

The Examiner's other assertions regarding the formation of vias do not appear to be particularly relevant to the anticipation rejection. While claims 1 and 10 recite "forming" "inter-component channels" by "arranging vias ... in the multilayer signal routing device," the Examiner's citations to Carey merely show that inter-layer vias are formed. Furthermore, the programming tracks, which the Examiner treats as the equivalent of "channels," are formed by cutting out portions of the customization plane, not by arranging or forming vias at all.

In view of the foregoing, claims 1 and 10 are allowable over Carey, and so are claims 2-9 and 11-14 which are dependent on claims 1 and 10 respectively.

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Respectfully submitted,

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